

Case 3695***Dimetrodon* Cope, 1878 (Synapsida, SPHENACODONTIDAE): proposed conservation by reversal of precedence with *Bathygnathus* Leidy, 1853**

K.S. Brink*

*Department of Biology, University of Toronto Mississauga, 3359
Mississauga Road, Mississauga, Ontario, L5L 1C6, Canada*

**Current address: Department of Oral Health Sciences, Faculty of Dentistry,
Life Sciences Institute, University of British Columbia, 2350 Health Sciences
Mall, Vancouver, British Columbia, V6T 1Z3, Canada
(e-mail: brinkkir@dentistry.ubc.ca)*

Abstract. The purpose of this application, under Article 23.9.3 of the Code, is to conserve the widely used generic name *Dimetrodon* Cope, 1878 (SPHENACODONTOIDEA, SPHENACODONTIDAE). The name *Dimetrodon* is threatened by its senior subjective synonym *Bathygnathus* Leidy, 1853. The name *Dimetrodon* has become widely accepted and is in prevailing usage. It is proposed that *Dimetrodon* be given precedence over *Bathygnathus* whenever these names are considered to be synonyms.

Keywords. Nomenclature; taxonomy; Synapsida; SPHENACODONTOIDEA; SPHENACODONTIDAE; *Bathygnathus*; *Bathygnathus borealis*; *Dimetrodon*; Permian; Canada; U.S.A.

1. *Bathygnathus borealis* Leidy, 1853 was named based on a partial jaw (Academy of Natural Sciences Philadelphia [ANSP] 9524) collected from the Early Permian redbeds of Prince Edward Island, Canada (Leidy, 1853, p.404). The specimen was described in detail and illustrated by Leidy the following year (Leidy, 1854). The generic name refers to the height of the jaw, as the specimen was presumed to be the lower jaw of a bipedal saurian upon initial description (Leidy, 1854). Subsequent publications erroneously referred to the species as a bipedal saurian, an early archosaur or phytosaur, or a dinosaur (Owen, 1860, pp. 252–253; Dawson, 1855, pp. 108–114, fig. 8a, b; Dawson, 1868, pp. 119–122, fig. 29a, b; Dawson, 1878, fig. 29a, b; Dawson, 1891, fig. 29a, b; Cope, 1867, pp. 234–235; Leidy, 1868, pp. 199–200; Leidy, 1885; Marsh, 1877, p. 344). Owen (1876, p. 359, fig. 9) re-described *Bathygnathus borealis* as the maxilla of a theriodont. Lesley (1889, p. 80) included *Bathygnathus* in a catalogue of fossil material, reproducing Dawson's (1855) drawings of the specimen as a dentary, but noted in the erratum (p. x) that Dawson illustrated the specimen upside down. In two independent publications, Case (1905) and von Huene (1905) both noted that *Bathygnathus* was in fact a partial upper snout of a sphenacodontid synapsid. The specimen has been listed and described as a sphenacodontid several times since, but the precise phylogenetic position of this taxon remained unknown (Case, 1907; Romer & Price, 1940; Reisz, 1986; Langston, 1963; Eberth, 1985; Spalding, 1995; Brink et al., 2013). No other nominal species of *Bathygnathus* have been described.

2. The most recent re-description of ANSP 9524 included CT scan data and two phylogenetic analyses. Brink et al. (2015) synonymized *Bathygnathus* and *Dimetrodon* (Cope, 1878, p. 512; type species *D. incisivus* by original designation following Article 68.2.1), but retained the species name *borealis* based on the presence of an autapomorphy and suggested that *Bathygnathus borealis* should now be known as *Dimetrodon borealis*. This results in 14 species of *Dimetrodon* accepted as valid.

3. Following Article 23.1 of the Code, *Bathygnathus* has priority over *Dimetrodon*. However, as *Dimetrodon* is well-known in the literature and popular culture, a reversal of precedence is required to preserve *Dimetrodon* and retain universality. A non-exhaustive list of 100 citations using the name *Dimetrodon* as valid is kept by the Commission Secretariat. The reversal of precedence is requested because *Bathygnathus* does not meet all the requirements of Article 23.9 for a nomen oblitum, specifically, Article 23.9.1.1.

4. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that the name *Dimetrodon* Cope, 1878 is to be given precedence over *Bathygnathus* Leidy, 1853, whenever the two are considered to be synonyms;
- (2) to place on the Official List of Generic Names in Zoology the following names:
 - (a) *Dimetrodon* Cope, 1878 (gender: masculine), type species by original designation *Dimetrodon incisivus* Cope, 1878, with the endorsement that it is to be given precedence over *Bathygnathus* Leidy, 1853, whenever the two are considered to be synonyms;
 - (b) *Bathygnathus* Leidy, 1853 (gender: masculine), type species by monotypy *Bathygnathus borealis* Leidy, 1853, with the endorsement that it is not to be given priority over *Dimetrodon* Cope, 1878, whenever the two are considered to be synonyms;
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *incisivus* Cope, 1878, as published in the binomen *Dimetrodon incisivus* (specific name of the type species of *Dimetrodon*);
 - (b) *borealis* Leidy, 1853, as published in the binomen *Bathygnathus borealis* (specific name of the type species of *Bathygnathus* Leidy, 1853).

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Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to I.C.Z.N., Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).